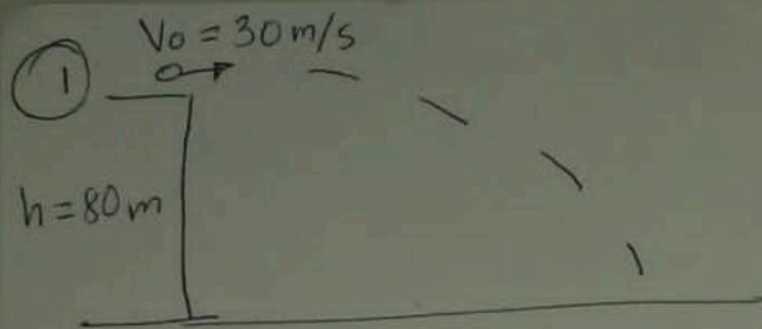


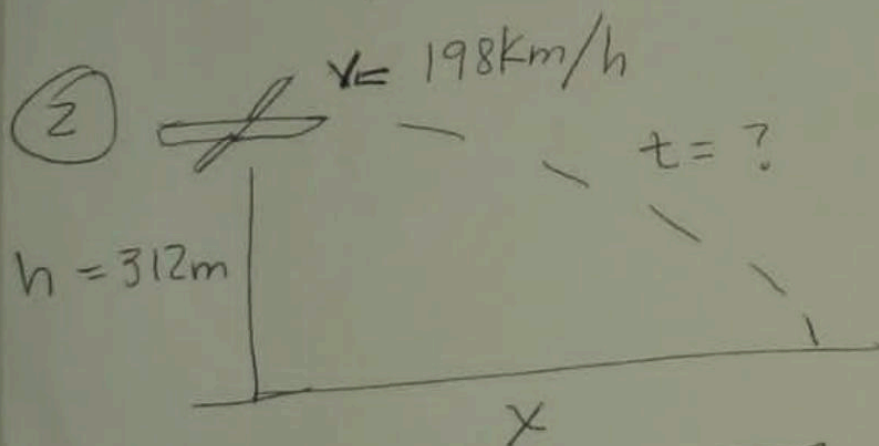


$$t = \sqrt{\frac{2h}{g}}$$

$$t = \sqrt{\frac{2(80 \text{ m})}{9.8 \text{ m/s}^2}} = \boxed{4.04 \text{ seg}} \quad \textcircled{a}$$

$$x = V_{0x} t$$

$$x = 30 \frac{\text{m}}{\text{s}} * 4.04 \text{ s} = \boxed{121.20 \text{ m}}$$



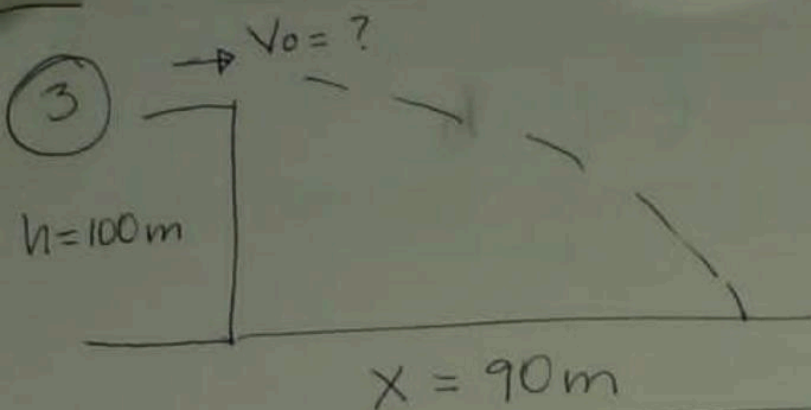
$$V = 198 \frac{\text{km}}{\text{h}} * \frac{1 \text{ h}}{3600 \text{ s}} * \frac{1000 \text{ m}}{1 \text{ km}}$$

$$V = 55 \frac{\text{m}}{\text{s}}$$

$$t = \sqrt{\frac{2h}{g}} = \sqrt{\frac{2(312 \text{ m})}{9.8 \text{ m/s}^2}} = \boxed{7.98 \text{ s}} \quad \textcircled{a}$$

$$x = V_{0x} t$$

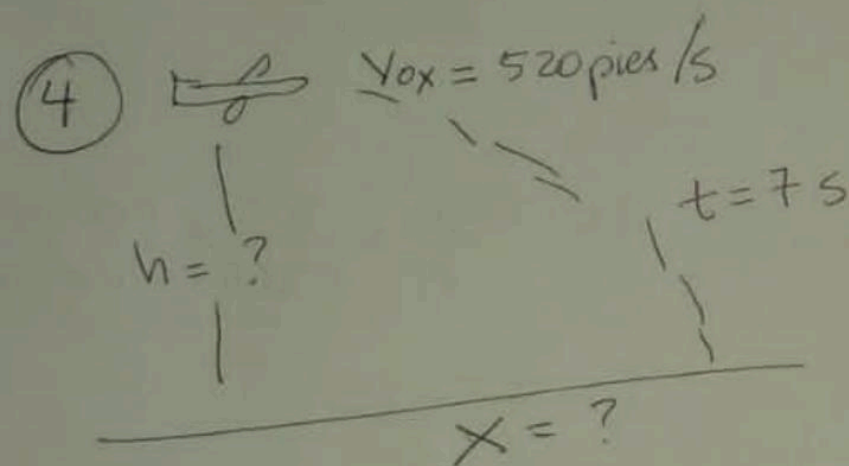
$$x = 55 \frac{\text{m}}{\text{s}} * 7.98 \text{ s} = \boxed{438.90 \text{ m}}$$



$$t = \sqrt{\frac{2h}{g}} = \sqrt{\frac{2(100\text{m})}{9.8\text{m/s}^2}} = 4.52\text{s}$$

$$X = V_{0x} t$$

$$V_{0x} = \frac{X}{t} = \frac{90\text{m}}{4.52\text{s}} = \boxed{19.91 \frac{\text{m}}{\text{s}}}$$



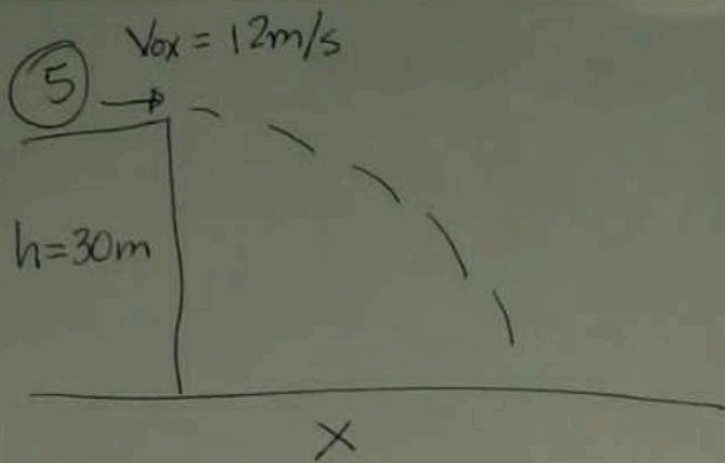
$$X = V_{0x} t$$

$$X = \frac{520 \text{ pies}}{\cancel{\text{s}}} * 7\cancel{\text{s}} = \boxed{3640 \text{ pies}} \text{ distance}$$

$$h = \cancel{V_{0y}} t + \frac{1}{2} g t^2$$

$$h = \frac{1}{2} \left(32.2 \frac{\text{pie}}{\text{s}^2} \right) (7\text{s})^2$$

$$\boxed{h = 788.90 \text{ pies}}$$

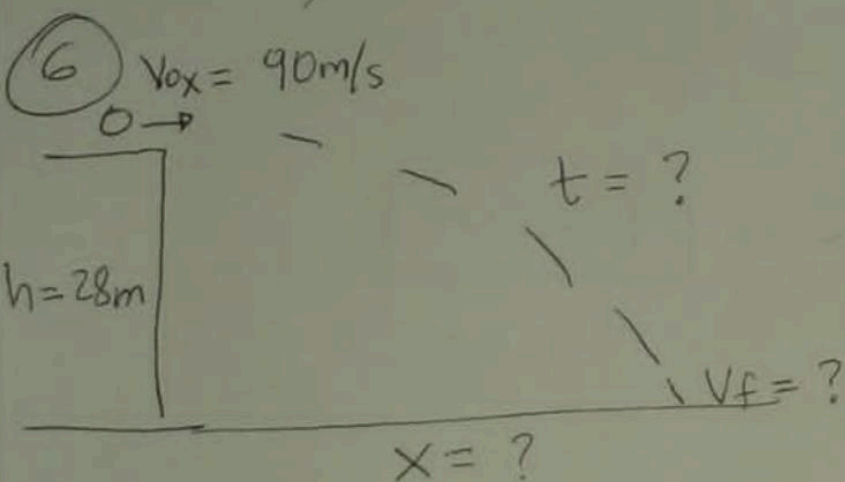


$$t = \sqrt{\frac{2h}{g}} = \sqrt{\frac{2(30 \text{ m})}{9.8 \text{ m/s}^2}}$$

$$t = 2.47 \text{ sec}$$

$$x = V_{0x} t$$

$$x = 12 \frac{\text{m}}{\text{s}} * 2.47 \text{ s} = \boxed{29.64 \text{ m}}$$



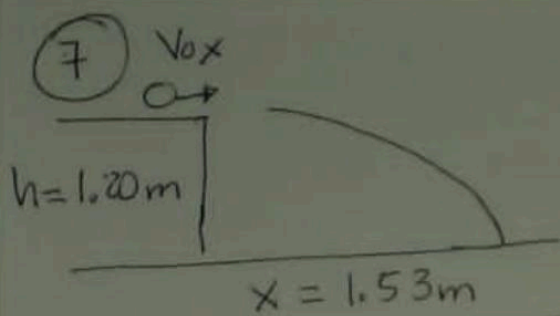
$$t = \sqrt{\frac{2h}{g}} = \sqrt{\frac{2(28 \text{ m})}{9.8 \text{ m/s}^2}} = \boxed{2.39 \text{ s}} \quad \textcircled{a}$$

$$x = V_{0x} t$$

$$x = 90 \frac{\text{m}}{\text{s}} * 2.39 \text{ s} = \boxed{215.10 \text{ m}} \quad \textcircled{b} \text{ distance}$$

$$V_{fy} = V_{0y} + gt$$

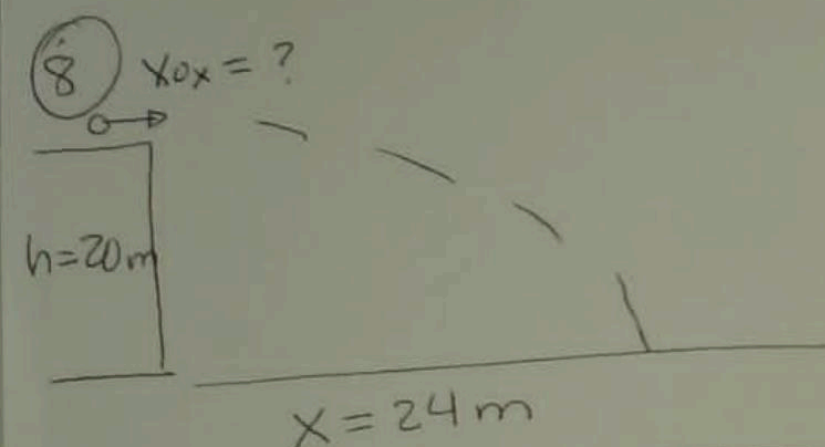
$$V_{fy} = 9.8 \frac{\text{m}}{\text{s}^2} (2.39 \text{ s}) = \boxed{23.42 \frac{\text{m}}{\text{s}}} \quad \textcircled{c}$$



$$t = \sqrt{\frac{2h}{g}} = \sqrt{\frac{2(1.20 \text{ m})}{9.8 \text{ m/s}^2}} = 0.49 \text{ sec}$$

$$x = v_{0x} t$$

$$v_{0x} = \frac{x}{t} = \frac{1.53 \text{ m}}{0.49 \text{ s}} = \boxed{3.12 \frac{\text{m}}{\text{s}}}$$



$$t = \sqrt{\frac{2h}{g}} = \sqrt{\frac{2(20 \text{ m})}{9.8 \text{ m/s}^2}} = 2.02 \text{ sec}$$

$$x = v_{0x} t$$

$$v_{0x} = \frac{x}{t} = \frac{24 \text{ m}}{2.02 \text{ s}} = \boxed{11.88 \frac{\text{m}}{\text{s}}}$$